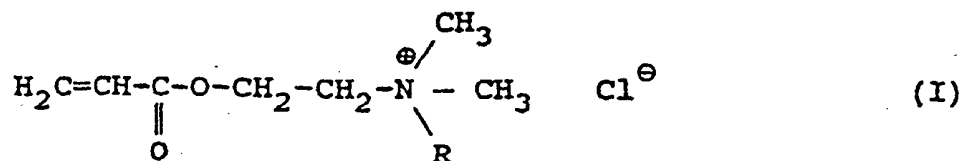


CLAIMS

1. A process for the manufacture of aqueous solutions of unsaturated quaternary ammonium salts
5 corresponding to the following formula (I):



- in which R represents a methyl or benzyl radical,
10 by reaction, in the presence of water, of N,N-dimethyl-aminoethyl acrylate (DAMEA) with a quaternizing agent of formula (II):



15

in which R is as defined above,
characterized in that:

- (a) the reaction is carried out in a closed reactor,
which comprises 5-60% of the amount by weight of
20 the DAMEA necessary for the reaction and which has
been pressurized by air or depleted air to 0.5 to
3 bar, by continuously introducing, at a
temperature of 35 to 65°C, on the one hand, the
quaternizing agent (II) and, on the other hand,
25 the water and finally the remaining DAMEA, until
the desired concentration of salt (I) in the water
is obtained,
- the start of the introduction of the water
beginning when 0-30% of the amount by weight
30 of the quaternizing agent (II) necessary for
the reaction has been added;
 - the start of the introduction of the
remaining DAMEA beginning when 20-80% of the
amount by weight of the quaternizing agent
35 (II) necessary for the reaction has been
added; and

- it being possible for the pressure at the end of the reaction to reach 9 bar; then
- (b) the reactor is depressurized while keeping the oxygen content constant by simultaneous introduction of air and, after returning to atmospheric pressure, the residual quaternizing agent is removed.
2. The process as claimed in claim 1, characterized in that the reaction is carried out at a temperature of 40 to 60°C.
3. The process as claimed in either of claims 1 and 2, characterized in that the reaction is carried out with a pressure which, at the end of the reaction, reaches 4 to 7 bar.
4. The process as claimed in one of claims 1 to 3, characterized in that the introduction of water is started when 10-20% of the amount by weight of the quaternizing agent (II) necessary for the reaction has been added.
5. The process as claimed in one of claims 1 to 4, characterized in that the introduction of the remaining DAMEA is started when 30-70% of the amount by weight of the quaternizing agent (II) necessary for the reaction has been added.
6. The process as claimed in one of claims 1 to 5, characterized in that the quaternizing agent is introduced over a period of time of 1-7 hours, the water over a period of time of 1-8 hours and the remaining DAMEA over a period of time of 2-8 hours.
7. The process as claimed in one of claims 1 to 6, characterized in that the reaction is carried out with a molar ratio of the quaternizing agent to the DAMEA of 1 to 1.1, preferably of 1 to 1.05.
8. The process as claimed in one of claims 1 to 7, characterized in that the reaction is carried out with a mean ratio of water/quaternizing agent throughput of 0.2-1.5; a mean ratio of remaining DAMEA/quaternizing agent throughput of 2.5-5; and a mean ratio of water/remaining DAMEA throughput of 0.2-1.2.

9. The process as claimed in one of claims 1 to 8, characterized in that it results in an aqueous solution having a concentration of quaternary salt (I) of 50 to 85% by weight.

5 10. The process as claimed in one of claims 1 to 9, characterized in that it is carried out in the presence of at least one stabilizer chosen in particular from 3,5-di(tert-butyl)-4-hydroxytoluene, hydroquinone methyl ether, hydroquinone, catechol, tert-butylcatechol, phenothiazine and mixtures of these
10 stabilizers, the content of stabilizing agent(s) being in particular from 20 to 2 000 ppm, preferably from 100 to 1 200 ppm, with respect to the aqueous solution of quaternary salt (I).

15 11. The process as claimed in claim 10, characterized in that it is carried out in the presence in addition of at least one sequestering agent for metals chosen in particular from diethylene-triaminepentaacetic acid, the pentasodium salt of
20 diethylenetriaminepentaacetic acid, N-(hydroxyethyl)-ethylenediaminetriacetic acid and the trisodium salt of N-(hydroxyethyl)ethylenediaminetriacetic acid, the content of sequestering agent(s) being in particular from 1 to 100 ppm, preferably from 5 to 30 ppm, with
25 respect to the aqueous solution of quaternary salt (I).

12. The process as claimed in one of claims 1 to 11, characterized in that the residual quaternizing agent is removed by stripping with air.